

## Scientific Plagiarism and the Theft of Ideas

Plagiarism is a subset of cheating—an act that Nelson Kiang, director of the Eaton Peabody Laboratory at the Massachusetts Eye and Ear Infirmary, defines as “claiming credit for work not done.”

Kiang and about 20 other scientists, journal editors, university attorneys, and officials from government investigative offices addressed issues related to handling allegations of plagiarism and the theft of ideas in scientific research at a recent conference sponsored by AAAS and the Office of Research Integrity (ORI).

“Plagiarism is not just an injustice against an author, but against the system,” said Kiang, who presented numerous cases of student plagiarism that came to his attention as chairman of the Massachusetts Institute of Technology’s Committee on Discipline.

But what exactly constitutes plagiarism? Who should handle the investigation? And what type of sanctions are appropriate for a crime that AAAS Scientific Freedom, Responsibility, and Law Program director Mark Frankel likens to “intellectual shoplifting?” The conference dealt with these questions and with newly emerging issues surrounding plagiarism from electronic sources (see sidebar).

“As part of the effort to evaluate how systems are responding to allegations of plagiarism,” said Frankel, “we need to develop a better understanding of the types of plagiarism that occur, their degree of seriousness, and who is perpetrating them.”

Once the scientific community defines this range—which may run from sloppiness in attributing quotes to lifting large blocks of text and incorporating them in grant proposals and papers—Frankel said that “the sanctions should fit the seriousness of the act.” Investigators should consider the extent of the plagiarism; whether intent has been demonstrated; evidence of previous theft of ideas; the rank, level, and train-

ing of the plagiarist; the source of the material; and the consequences for the person whose work has been copied. Stating that the choice of sanctions should be broadened to fit the range of the crime, Frankel said that “we need to be more creative in our thinking about sanctions. They should not only be punitive, but play a valuable educational and rehabilitative function.”

Of course, clarifying the nature of this continuum and reducing the occurrence of plagiarism requires education. Said Frankel, “I think we make a mistake if we assume that researchers, students, and post-docs come to the scientific arena properly prepared to deal with these issues.”

Who decides what the behavioral norms should be? While par-

ticipants agreed that personal responsibility should be stressed, many felt that universities and professional associations should assume a leadership role in describing acceptable conduct and dealing with disagreements. “No matter who deals with cases, everybody needs to get a better handle on defining the nature of plagiarism and the context in which it occurs,” insisted Frankel.

Of course not everyone at the conference was pleased by the outcome. “This conference does not address the problem that nothing gets done,” said National Institutes of Health (NIH) scientist Walter Stewart. Along with fellow NIH investigator Ned Feder, Stewart was barred from continuing his investigation into alleged plagiarism by historian Steven Oates.

“It’s unfair to say that nothing ever gets done,” said Frankel. “It’s

just that some things do not get done to everyone’s satisfaction.” During the conference, ORI published the finding of 14 cases of scientific misconduct in the *Federal Register*. Additional cases being handled by ORI are currently pending judgment on appeal.

Many of the conference participants stated that research institutions need to rise to the challenge of resolving disputes on their own turf, and that professional societies, journals, and individual researchers all have a responsibility to help set and maintain standards for ethical behavior. “The responsibility for integrity rests on everyone in the system of science—researchers, students, post-docs, institutions, professional associations, granting agencies, and investigative offices,” said ORI Division of Research Investigations chief Alan Price.

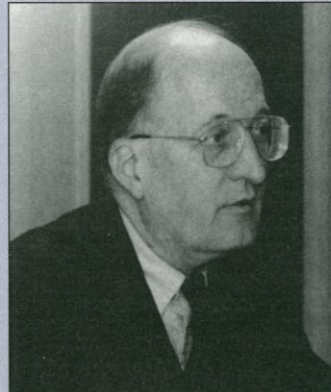
## Electronic Publications: Land of Opportunity?

“Electronic information is easy to copy,” said Lorrin Garson, the head of advanced technology at the American Chemical Society. “The time it would take someone to copy a file from CD-ROM or over the Internet is less than one second.”

Coupled with the rapid expansion of electronic publications, databases, and images, the medium might seem a plagiarist’s paradise. According to Edward Huth, editor of *The Online Journal of Current Clinical Trials*, electronic publications offer several advantages to the potential plagiarist: the original documents are more obscure than the old-fashioned paper copy that used to be delivered to your desk; without space constraints, electronic journals may publish very lengthy studies of interest to a relatively small audience; and an adequate system of indexing has not been fully developed.

But in addition to the increased opportunity for the aspiring plagiarist, electronic technology provides an increased potential for detection. Garson described two methods currently being used to foil possible plagiarists—assigning text files “hash sums” that will serve as the file’s

fingerprints and incorporating underlying “water mark” codes that can be used to identify copied electronic text.



OJCCCT editor Edward Huth.

The electronic medium can also provide a forum for discussing these ethical issues. In May, AAAS launched a bulletin board system for exchanging information and ideas pertaining to professional and applied ethics issues. Users from Cambridge to Kalamazoo can join in electronic conferences, post messages, and check the bulletin board for job opportunities, calls for ethics papers, and upcoming conferences.

Last week, system operator Paul Higgins opened the file system area, where users can access text files relating to professional ethics. Several volumes of the AAAS quarterly *Professional Ethics Report* and ORI’s newsletter are currently available for downloading.

Until AAAS joins the Internet later this summer, users may log in to the bulletin board using any standard communications software by dialing 202-842-3581. Once you enter the AAAS bulletin board system, just join the ethics sub-board and you will be ready to join in the “conversation.”



## Network Ethics: A Call for Papers

The AAAS-ABA National Conference of Lawyers and Scientists (NCLS) invites proposals for original papers for presentation at a two-and-a-half-day invitational conference on "Legal, Ethical, and Technological Aspects of Computer and Network Use and Abuse." Forty participants representing a diverse set of perspectives and areas of expertise will present papers at the conference, which will be held in southern California in mid-December 1993. Up to three successful applicants will receive travel expenses and room and board at the conference. Papers will be included in the conference proceedings and may be published subsequently in a book or journal symposium.

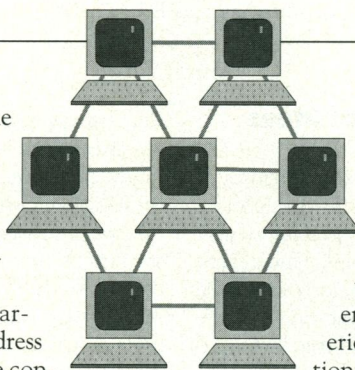
The conference will focus on the ways in which the law, ethics, and technology can influence the bounds of acceptable behavior and foster the development of positive human values in a shared computer environment. Participants will address handling unwanted intrusions into computer software or networks, including unauthorized entry and dissemination of viruses through networks or shared disks. Also on the agenda: access to information, privacy, security, and equity; the role of computer users, academic institutions, industry, professional societies, government, and the law in defining and maintaining legal and ethical

standards for the use of computer networks; and a policy agenda for implementing these standards.

Although participants may address any aspect of the conference theme, papers reporting empirical research, surveys of computer users, and case studies (other than those that are already well known) are especially encouraged.

If you are interested in participating in the conference, please forward a summary or outline of no more than 500 words, together with a one-page résumé and a brief statement detailing how your expertise or perspective would contribute to the meeting. These proposals will be reviewed by an advisory committee convened by NCLS and successful applicants will be asked to prepare papers for the meeting. Participants must submit an original, previously unpublished paper, between 5000 and 8000 words (25 to 30 double-spaced pages) in length.

Proposals must be received by 5 p.m. EST, 15 September 1993. Applicants selected to prepare papers will be informed by 1 October, and draft papers will be due 3 December 1993. Final versions of the papers, revised in light of conference discussions, will be due approximately 2 months after the conference.



NCLS is an organization sponsored jointly by the American Association for the Advancement of Science and the American Bar Association, dedicated to im-

proving communication between members of the legal and scientific/technical professions and exploring issues at the intersection of law, science, and technology. Funding for this meeting has been provided by the Program on Ethics and Values Studies of the National Science Foundation. For further information or to submit paper abstracts and accompanying materials, please contact Deborah Runkle, Directorate for Science & Policy Programs, AAAS, 1333 H Street, NW, Washington, DC 20005. Phone: 202-326-6600. Fax: 202-289-4950. E-mail: values@GWUVM.gwu.edu.

## Kudos for Lederman

Former AAAS chairman Leon Lederman has been awarded the 1992 Enrico Fermi Award. The oldest science and technology award presented by the White House through the Department of Energy, the Fermi Award recognizes lifetime achievement in the field of nuclear energy.

Lederman, director emeritus of the Fermi National Accelerator Laboratory and special adviser to the AAAS executive officer, received the award "for his pioneering scientific achievements in high energy physics exemplified by his discovery of the up-silon particle and the muon neutrino; for his leadership in the creation of the world's first major superconducting accelerator at Fermilab; and for his leadership in science education at all levels of society."

Among his numerous honors, Lederman received the Nobel Prize in Physics in 1988.

## 1994 Dues Increase

The AAAS Board of Directors has approved a dues increase for 1994. This decision was based on the rising costs associated with publishing and mailing *Science* every week. Though these costs have been very carefully controlled over the past 2 years, more editorial pages have been added in order to provide members with broader coverage of scientific news and research. In addition, postage rates for nonprofits are expected to increase sharply next year. The last dues increase was in 1992.

### THE 1994 RATES

- regular members: \$92
- post-doc and K-12 teachers: \$67
- students and emeritus with *Science*: \$50
- patrons: \$200
- corporate: \$1000
- spouse, supporting, and emeritus members who do not receive *Science* remain at \$35
- library/institution: \$215

In addition, there will be an increase in airmail postage.

All members whose membership expires in 1994 will be advised of the new rates on their renewal notices.

Member dues and voluntary contributions form the critical financial base for AAAS activities. The association works toward applying science to the advancement of humanity through internationally recognized publications, meetings, and programs in science education, scientific freedom and human rights, science public policy, and international scientific cooperation.

## Annual Report Available

Individual copies of the AAAS 1992 Annual Report are now available free to interested members. Entitled "The Synergy of Science," the report describes the progress of ongoing AAAS activities, including encouraging reform in science education, promoting science in the former Soviet Union and Africa, exposing human rights abuses, and presenting the best in international research at conferences and in interdisciplinary peer-reviewed journals.

A list of AAAS fellows and affiliates, as well as a full financial report for 1992 is included. To obtain a copy of the Annual Report, contact the Office of Communications at 202-326-6440.